



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,906	12/21/2001	Xiangxin Bi	2950.54US01	9919

24113 7590 09/27/2004

PATTERSON, THUENTE, SKAAR & CHRISTENSEN, P.A.
4800 IDS CENTER
80 SOUTH 8TH STREET
MINNEAPOLIS, MN 55402-2100

EXAMINER

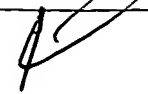
HELLNER, MARK

ART UNIT PAPER NUMBER

3663

DATE MAILED: 09/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/027,906	Applicant(s) BI ET AL. 	
	Examiner Mark Hellner	Art Unit 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-25, 126-133, 136, 137, 142-145 and 148-184 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 136, 137 and 173-179 is/are allowed.
- 6) ☒ Claim(s) 2-25, 126-133, 142-145, 148-171 and 180-184 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9222004</u> . | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 3663

DETAILED ACTION

Response to Amendment

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

NEW PRIOR ART

An update search has discovered "prior art" that is more pertinent to the claims of the present application than the previously cited art. As a result, a new grounds of rejection is being presented.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 4 –7, 9-13 and 16, 17 and 19-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Yoshimura et al.

Yoshimura et al disclose a layered optical structure comprising: at least two layers (20 and 120) having compositional variation within each layer, the layers having at least a first and second layer (23-25, 123-1510; a turning element (153, 155 and 45) being partially located in the first and second layers, the turning element reflecting light

Art Unit: 3663

from a confined pathway (124b) in the second layer to a confined pathway (24g) in the first layer; a plurality of optical devices (IC chips 1a –1d) integrated into the first layer.

The structure above reads on claim 5.

Claim 4 is taught by column 12, line 31.

Claim 6 is taught by the substrate (10) of figure 1.

Column 2, lines 52-63 teach claim 7.

Claim 9 is disclosed by the devices taught by Yoshimura et al – taken as a whole

-. A specific example is figure 36.

Figure 36 also teaches claim 10.

The combination of elements (155) and (45) teaches claim 11.

Claims 12 and 13 are disclosed by the reflection of light off of element (44).

Claims 16 and 17 are taught by column 8, lines 30-35 and column 8, lines 50-65.

Claim 19 is taught by element (44).

Claim 20 is taught by element (155).

The combination of elements (44) and (144) teaches claim 21.

The light pathway defined by figure 22 reads on claim 22.

Claims 23-25, 148-155 and 158 are rejected under 35 U.S.C. 102(e) as being anticipated by Yoshimura et al.

The structure pointed out above reads on claims 23-25, 148-155 and 158. The gradual turn (claim 23) is taught by element 155 because 90 degrees is not a sharp turn with respect to light rays.

Art Unit: 3663

Claims 126-129, 157 and 160-163 are rejected under 35 U.S.C. 102(e) as being anticipated by Yoshimura et al.

Claims 126-129, 157, 159 and 160-163 provide the additional limitation to the claims rejected above requiring a tap material having a refractive index intermediate of the core and the cladding material. This limitation is met by element (153).

Claims 130, 131, 132, 167, 169 and 170 are rejected under 35 U.S.C. 102(e) as being anticipated by Yoshimura et al.

The subject matter of claims 130, 131, 132, 167, 169 and 170 is taught by the structure applied to the claims rejected above.

Claims 142, 143, 145, 182 and 183 are rejected under 35 U.S.C. 102(e) as being anticipated by Yoshimura et al.

Figure 2 discloses a planar optical circuit comprising a monolithic structure having two integrated optical device chips (32) and a free space optical element (6260) in a trench position relative to the device chips.

The structure above reads on claims 142 and 143.

Claim 145 is taught by column 8, line 57.

Claim 182 is taught by column 12, line 31.

Claim 183 is taught by column 2, lines 52-63.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 3663

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 3, 8, 168, 171, 180, 181 and 184 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshimura et al in view of Akwani et al.

Akwani et al is cited to show that doped silicon oxide glass was known to be used in the fabrication of waveguides in layered optical devices.

As a result, claims 2, 3, 168, 180 and 181 would have been obvious because Yoshimura et al is directed to a layered optical device that includes waveguides.

Akwani et al (last part of abstract) also teaches that , thermal conductivity, stress reduction, and electrical conductive materials (claims 8, 171 and 184) are all part of a layered optical device. As a result, it would have been logical for a person of ordinary skill in the art to have considered these layers in the construction of the Yoshimura et al device.

Claims 14, 15, 133 and 145 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshimura et al.

A fluid , glass or photonic crystal fall into the category of organic or electro-optic polymers and, as such, render claims 14, 15, 133 and 145 suggested to a person of ordinary skill in the art by column 8, lines 55-59 of Yoshimura et al.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshimura et al in view of Yamamoto et al.

Yamamoto et al is cited to show that thermo-optic materials were known at the time of the present application to provide a fast change in index of refraction (thus fast switching) in response to a light source providing a thermal input (light source).

Art Unit: 3663

It is noted that the Z direction switches of Yoshimura et al require a material that changes index of refraction in response to a control input, thus indicating a viability for using the materials taught by Yamamoto et al for their Z switches.

The reason for this substitution would have been the ability to use optical control of switching.

Claim 156 and 164 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshimura et al.

The device of Yoshimura et al requires that the vertical coupler guide light. As a result, a person of ordinary skill would have known that the surrounding materials would have to have a refractive index low enough to prevent leakage, thus producing claim 156 or 164.

Claims 136, 137 and 172-179 are allowed.

The "prior art" does not teach or suggest - within the context of claim 136 - a thermally conductive second cladding layer in combination with a pump core that comprises an absorption region.

Any inquiry concerning this communication should be directed to Mark Hellner at telephone number 703 306 4155.

Mark Hellner

Primary Examiner

AU 3663

A handwritten signature in black ink that reads "Mark Hellner". The signature is written in a cursive, flowing style.